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COMPLETE SPECIFICATION.

An Improved Dry Air Inhaler and Injector to Enable the Inhalation and Injection of Atmospheric Air and Gases Heated to High Temperatures by Human Beings and Animals.

I Lewis Abraham Tallerman of The Langham Hotel Portland Place London W. Gentleman do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

The object of this my invention is to provide an apparatus by means of which may be inhaled or injected into the human or animal body at temperatures raised or lowered at will dry atmospheric air, compressed air & gases, whether medicated or non-medicated saturated or comingled with other gases or respirable substances under pressure or otherwise also fumes or smoke arising from the combustion of mineral & vegetable matter.

And wherewith the temperature of the said air and gases may be goverened & regulated so that it may be maintained or gradually or quickly raised or lowered or varied at will during the time that the process of inhaling or injecting is being carried out & by the said gradual raising of the temperature to enable the use of the beforementioned inhalants & injections without risk or danger to the patient.

Also to enable any moisture introduced respired into or through any cause whatever present in the apparatus to be evaporated or otherwise expelled before or during the time the process of inhaling or injecting is being carried out thereby drying the said air gases or other contents of the apparatus.

Also to enable the disinfection of the said air gases or other inhalants and injections by subjecting them to the action of extreme heat.

I construct my apparatus in the following manner, *viz.*,—I construct a copper receiver A of convenient form and size preferably cylindrical and of about 28 inches in length and 16 inches in diameter to hold the air gas or other inhalant or injection to be used. This receiver may be bell-shaped oval or other convenient shape and its dimensions larger or smaller. I do not confine myself to the use of copper any other suitable metal or material may be used in the construction of both the receiver and the fittings of the apparatus and the forms and proportions of both may be varied.

One end of the receiver if cylindrical is closed by an air-tight metal cap B having a projecting metal tongue at the bottom thereof which tongue passes through a loop projecting from the bottom of the receiver and serves as a pivot on which the said cap called the valve-cap can move when open. When closed it is fastened to a lug on the top of the receiver by a fast running screw C.

At the top or side but preferably at the opposite end fastened to the receiver preferably by a tourniquet is a tube or funnel or trumpet shaped fitting D projecting outwards and upwards of metal or other suitable material divided into three sections called the inhaling chambers.

The centre section is formed by two screens of wire net E placed midway in the said fitting and three inches apart, it has a door or slide and forms the chamber F in which the dry air gases and other inhalants and injections in passing through may be medicated or saturated and in which vapourization or volatilization may be carried out.

[*Price 8d.*]

Volatilization and evaporation or vapourization of medicaments and other substances for inhalation or injection may also be carried out in the receiver which presents greater facilities for quickening both processes by reason of the greater cubic contents thereof permitting the exposure of a greater medicated surface to the action of greater and more direct dry heat and also by reason of the superior outlets G. H. I. for ventilation and regulating the temperature by continuous or intermittent currents according as the said outlets may be opened or closed.

At the top of the inner inhaling chamber *viz.*, that section next to the receiver is a metal outlet tube G about 2 inches high having an outlet one inch in diameter which closed with a metal stopper or key this when opened in conjunction with a similar tube on the bottom H of the receiver induces a continuous current for the purpose of ventilation evaporation and the replacement of air removed from the receiver during the process of inhaling and injection and a freer circulation of heated dry air from the receiver to the inhaling chambers is promoted.

Two panels J one on each side of the receiver act as ventilators when required and close by slides or doors.

The outer inhaling chamber K has a thermometer L the bulb of which passes into the interior the scale showing on top indicates the temperature therein.

When the apparatus is used as an inhaler an ordinary oral nasal or ora-nasal piece M or tube or cannula or other fitting suitable or convenient for the purpose is connected with the outer end of the inhaling chambers and the air or gas may be compressed when required by use of the pumping gear described hereafter for the purpose of injecting. A pressure gage N at the top of the receiver indicates the pressure within.

The receiver may be heated by gas O oil spirit or electricity, preferably by gas applied to the bottom thereof and the inside temperature is indicated by a thermometer P as in the inhaling chambers before described.

To raise the temperature the valve-cap B and outlet tubes are closed and the gas is turned full on until the required temperature is registered. To lower the temperature the reverse of the foregoing operation is carried out, *viz.*,—the outlets are partly or entirely opened as also the valve-cap and the gas turned down.

If it be desired to maintain a certain temperature attention must be paid to the manipulation of the valve-cap and the opening and closing of the before mentioned outlets will be regulated in accordance with the movements registered by the thermometer.

When the apparatus is used as an injector for the valve-cap used for the inhaler is substituted a similar air tight copper cap Q having a small copper cylinder R open at both ends fitted in the centre on the inner side thereof so that when closed the small cylinder is in the interior of the receiver and projected towards the centre. A brass piston rod S of about three-quarters of an inch in diameter passes from the outside through the centre of the cap into the small cylinder and at the end of the piston rod so passed through a disc of wood T or other suitable material is fixed.

The rod is then pushed forward thereby forcing the air out of the small cylinder into the receiver and consequently forcing almost as much heated air as was displaced from the cylinder through the funnel. The piston rod is then drawn back and the vacuum caused by this pumping operation is filled by air admitted from the outside into the receiver through one of the outlet tubes which admitted air is at once heated by mixing with a large volume of hot air.

I do not confine myself to this pumping gear but may substitute for it any suitable ordinary pumping gear worked by a lever from the outside.

To the outlet at the end of the inhaling chambers is fitted a tube pipe cannula rose or other fitting suitable for the purpose of injecting hot dry air and gases medicated or non-medicated smoke and fumes the results of combustion volatilization or evaporation.

When used as an inhaler the patient is seated or lying and inspires through the oral or nasal or ora-nasal piece at the end of the outer inhaling chamber

at a temperature commencing at 100 degs. Fah. which is gradually raised in the manner before described. When used as an injector the injection is forced through the mouth nose or anus or any artificial opening or aperture natural or artificial by the pumping operation before described and the temperature is raised and regulated in a similar manner.

Volatilization vapourization and evaporation is effected by the exposure of medicaments and other substances in vessels trays or saturated fabrics or other material placed in the inhaling chambers or hung on frames or otherwise conveniently placed in the receiver.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed I declare that what I claim is

1. A dry hot air inhaler and injector for human beings and animals the system of heating and ventilating which, enables moisture introduced by respiration or otherwise to be evaporated therefrom before and during the process of inhaling or injecting substantially as hereinbefore described.

2. A hot dry air inhaler and injector by means of which atmospheric air compressed air and gases medicated or non-medicated may be gradually heated to any required temperature and maintained thereat for any desired time or the temperature may be raised and lowered and regulated at will during the process of inhaling and injecting thereby enabling the use of the highest degree of heat that can be borne by each patient to be ascertained and used without risk or danger substantially as hereinbefore described.

3. An inhaler and injector in which is volatilized or evaporated or vapourized by dry heat medicaments and other substances wherewith to charge or saturate the atmospheric air gas or other inhalant or injection to be used the degree of heat being regulated at will and raised or lowered or maintained at the temperature most suitable for quickening or retarding the process of volatilization and vapourization before and during the process of inhalation and injection substantially as hereinbefore described.

Dated this 28th day of January 1896.

LEWIS ABRAHAM TALLERMAN.

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